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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,193	07/26/2001	Kwang-Leong Choy	FRYHP0102US	9311

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/890,193	CHOY ET AL.
Examiner	Art Unit	
Jennifer McNeil	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 14 April 2003.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

4) Claim(s) 20-49 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 20-49 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Disposition of Claims**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 78-9.

4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

DETAILED ACTION

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20, 22, 23, 25-28, 31, 32, 35, 37, 38, 40-43, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Wickersheim (US 4,560,286). Wickersheim teaches temperature measurement utilizing phosphors. A phosphor coating is provided on a solid object. The phosphor emits two or more distinct wavelengths that vary as a known function of temperature. The phosphor is excited by a light source, and a detector gathers the emitted radiation. The signals are analyzed in a processing circuit and the temperature is measured.

Regarding claims 25-28, and 40-43, the phosphor may be a rare-earth oxide doped with Eu, Tb, or Dy (col. 7, lines 22-46).

Regarding claims 31, 32, 46, and 47, Wickersheim clearly teaches that this device may be a turbine (col. 18, lines 18-26).

Regarding claims 22, 23, 37, and 38, it is fully expected that the phosphor of Wickersheim would be responsive to at least one other parameter of the coating, as the phosphor is commensurate with that of the instant claims, and is taught to be effective in a turbine setting.

Claims 20, 22-28, 31, 32, 35, 37-43, 46, and 47 are rejected under 35 U.S.C. 102(a) as being anticipated by Allison et al (US 5,730,528). Allison teaches a method and apparatus for measuring temperature using a phosphor. The apparatus includes a high thermometric phosphor material on a device. The phosphor material allows for the determination of the temperature of the device due to the reactivity of the phosphor. Materials that are useful at high temperatures and in environments such as turbines, include YAG doped with Dy, Sm, Tb, and Eu (col. 8, lines 38-56). The phosphor is excited with a laser light source, the emissions are detected with detector means, and are then processed by an analyzer to determine the temperature.

Regarding claims 24-28, and 39-43, as stated above, the phosphor includes YAG doped with Dy, Sm, Tb, or Eu, and is considered a composite material.

Regarding claims 31, and 32, Allison clearly teaches that the apparatus and method are useful with heat engines, turbine, reciprocating engines, and combustion reactions (col. 8, lines 38-43).

Regarding claims 22, 23, 37, and 38, it is fully expected that the phosphor of Allison would be responsive to at least one other parameter of the coating, as the phosphor is commensurate with that of the instant claims, and is taught to be effective in a turbine setting.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 29, 30, 33, 34, 36, 44, 45, 48, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allison et al (US 5,730,528). Allison teaches temperature measurement using a phosphor coating as discussed above, but does not include additional layers with the phosphor coating.

Art Unit: 1775

Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide additional layers to promote adhesion of the phosphor layer as well as provide protection to the underlying substrate or phosphor layer from the high temperature environment.

Regarding claims 33, 34, 48, and 49, as it is taught by Allison that the device is useful in turbine engines, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the phosphor coating and temperature measurements to components which are subject to high temperatures and corrosion, such as blades and heat shields.

Claims 21, 29, 30, 33, 34, 36, 44, 45, 48, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wickersheim (US 4,560,286). Wickersheim teaches temperature measurement using a phosphor coating as discussed above, but does not include additional layers with the phosphor coating. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide additional layers to promote adhesion of the phosphor layer as well as provide protection to the underlying substrate or phosphor layer from the high temperature environment.

Regarding claims 33, 34, 48, and 49, as it is taught by Wickersheim that the device is useful in turbine engines, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the phosphor coating and temperature measurements to components which are subject to high temperatures and corrosion, such as blades and heat shields.

*Response to Arguments*

Applicant's arguments with respect to claims 20-49 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has canceled all previous claims and has presented new claims drawn to a combination of the previously submitted independent claims 1 and 16. This combination was not previously examined due to the original submission of claims 16-19 in an unexaminalble form.

Applicant states that the examiner did not address claim 13 in the previous office action, and therefore some of the instant claims are allowable. The lack of inclusion of claim 13 was an oversight. Claim 13 was originally directed to the coated component being in a gas turbine engine. The examiner addressed this at two points in the previous office action. The first instance was in the 102 rejection over Allison, and the second time was in the 103 rejection over Allison. Furthermore, the 103 rejection of claims 14 and 15 recited the limitation, and are further limiting over claim 13, from which they are dependant.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1775

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer McNeil whose telephone number is 703-305-0553. The examiner can normally be reached on Monday through Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 703-308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer McNeil  
Examiner  
Art Unit 1775

*JM*  
JCM  
July 24, 2003

*Robert R. Koehler*  
ROBERT R. KOEHLER  
PRIMARY EXAMINER  
ART UNIT 1775